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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

THOMPSON, MICHAEL M

ART UNIT	PAPER NUMBER
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3763

DATE MAILED: 03/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/316,851

Applicant(s)

BUI, HAI

Examiner

Michael M. Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,13,16-22,35,37-46 and 48-50 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,13,16-22,35,37-46,48-50 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 04 January 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 U.S.C. §102/103

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4-6, 8, 13, 16-18, 20, 21, 35, 40-50 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Costin ('256).

Costin teaches an "irrigation system" with a reservoir, pump line coupled to the pump, pressure sensor, accumulator, controller coupled to pressure sensor, aspiration system, pump, line, and pressure sensor and a medical device coupled to both the irrigation line and aspiration line.

Costin teaches a flexible membrane (Figure 10) separating a first and second chamber and in communication with the pressure transducer/sensor, and irrigation line. In column 10 Costin teaches that top membrane (1200) made of polysilicon detects pressure when the distance between the polysilicon membrane and the n+ well (1100) changes. It is the Examiner's position that the only reasonable interpretation of these statements is that the polysilicon membrane must

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be flexible and must deflect to cause a change brought about by pressure to alter the distance between the n⁺ well and polysilicone membrane. The layer of silicon nitride is merely used as an insulator. The Examiner would also conclude that on either side of the barrier is a first and second chamber as described by Applicant with one of the chambers being in fluid communication with a pressure transducer to assimilate the information about the instant pressure. Furthermore it is the Examiner's position that the ability of the pressure sensor (104) to maintain intraocular pressure is also inherent if not obvious. When puncturing the eye it would seem important to maintain the pressure of the vitreous chamber to prevent leakage of the vitreous humor and/or collapse of the eyeball. Also, pressure sensors that monitor the aspiration line and irrigation line are shown in (for example) Figure 6. Costin also teaches a controller that varies the pump, determines a flowrate, by providing output signals.

4. In the alternative, it is the Examiner's position that the Costin patent teaches all of the structural limitations of the claims and their functions, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70. In column 10 Costin teaches that top membrane (1200) made of polysilicon detects pressure when the distance between the polysilicon membrane and the n⁺ well (1100) changes and the membrane must be flexible to cause a change brought about by pressure to alter the distance between the n⁺ well and polysilicone membrane. The layer of silicon nitride is merely used as an insulator. Since the membrane acts as a pressure sensor barrier, the Examiner would further conclude that on either side of the barrier is a first and second chamber as described by Applicant with one of the chambers being in fluid communication with a pressure transducer to assimilate the information about the instant pressure. Furthermore it is the Examiner's position that the ability

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of the pressure sensor to maintain intraocular pressure is also inherent if not obvious. When puncturing the eye it would seem important to maintain the pressure of the vitreous chamber to prevent leakage of the vitreous humor and/or collapse of the eyeball. Also, pressure sensors that monitor the aspiration line and irrigation line are shown in (for example) Figure 6. Please note it has also been held that mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

5. Claims 3, 7, 19, 22, 23, 34, and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Costin in view of Voss et al.. Costin teaches all of the limitations of the claims except for explicitly stating that the controller determines an actual fluidic resistance from the flowrate and provides an output signal. Voss et al. teaches a fluid flow device that monitors fluidic resistance through the monitoring of the impedance to fluid flow. Voss et al. teaches that a device containing an impedance monitor can detect the fluids "fluidic resistance" and calculate a resistance to flow. Costin teaches a second embodiment of his device containing an impedance monitor in Figure 8. Therefore, it is the Examiner's position that it would have been obvious to one of ordinary skill in the art, at the time of invention, to have modified (if needed) the impedance monitor of Costin, with the impedance and fluidic calculator of resistance to allow the Costin device to monitor fluidic resistance since it well known in the art of fluid flowing systems to monitor impedance as taught by Costin, if not calculate fluid resistance as explicitly taught by Voss et al. With respect to a valve mechanism coupled to the irrigation line, the Examiner maintains that valves are well known in the art, and are attached to all types of fluid

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flow devices to prevent backflow, maintain pressure, prevent contamination, to include several other purposes.

Response to Arguments

6. Applicant's arguments filed 11-29-2001 have been fully considered but they are not persuasive. The Examiner would like to acknowledge the phone interview conducted by Applicant and the distinctions between the fluidic capacitor of Costin and Applicant's accumulator. However, upon further review it appears that the prior art relied upon by the Examiner is structurally identical to Applicant's claimed limitations. The Examiner has defined a similar chamber with a membrane that acts as a pressure-sensing device. In all, it appears that the accumulator encompasses a chamber, which contains the membrane that divides the main chamber into two smaller chambers. Applicant further asserts that the accumulator may assist in the fluid pressure sensing...but also maintains pressurized fluid and supplies such fluid in response to an event. Whether recited through positive or functional recitation, the Examiner contends that the Costin device inherently functions in the same manner. One might consider the abstract of the Costin reference which specifically states, "The supplemental apparatus for infusion and aspiration maintains a stable control volume within the anterior chamber of the human eye during a phacoemulsification procedure. Integration of the fluid pressure and flow sensors in close proximity...reduction of communicating fluid pressure and flow rate via fluid conduits allows fast system response time and accurate operation control." While Costin does appear to attribute the fast responses, etc. to the flow conduits and their proximity to the headpiece, it is clear that the device has the ability to maintain a stable control volume by fast response to insure accurate operation due to the integration of the **fluid pressure and flow**

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sensors. Therefore, the device taught by Costin must inherently comprise a fluid within the chamber and under pressure acting as a form of pressurized fluid storage capability for at least a fraction of time. On page 12, paragraph 1, Applicant refers to what the Examiner considers to be an accumulator as, "the fluidic capacitor." When one considers the theory of capacitance with respect to fluid flow, in light of the device being constructed to maintain a stable control volume by fast response due to fluid pressure and flow sensors, one can inherently conclude that the "accumulator" of Costin under the fluidic pressure of the system clearly acts as an accumulator as described by Applicant to ensure accurate operation and control. As stated in the rejection above it is imperative that pressure be adjusted continually with fast response when working within a chamber of the human eye.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Contacts

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Michael Thompson whose telephone number is (703) 305-1619. The Examiner can normally be reached on Monday through Friday from 9 am to 5 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Primary, AnhTuan Nguyen, can be reached on (703) 308-2154. The official fax phone number for submissions to the organization where this application or proceeding is assigned is (703) 872-9302. The official fax phone number for submission of After Final response is (703) 872-9303.

Michael M. Thompson

Patent Examiner


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MT 

March 07, 2002